FOREST PROTECTION

A REGULATION TO PREVENT WILD FIRES ON FOREST LANDS

OCTOBER 1989

A DISCUSSION PAPER

Province of
British Columbia
Ministry of
Forests

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PREFACE

The purpose of this Discussion Paper is to obtain the views of all concerned parties before new regulations are finalized and adopted by Order-in-Council. The Discussion Paper addresses several topics, some of which are of a technical nature - particularly where they relate to certain industrial activities. Other parts are quite straight forward and relate to issues with which we are all familiar. Whatever your point-of-view, and for whatever reason you are concerned about the protection of B.C.'s forests from fire, your opinions will be valued. Your comments should be addressed by November 30, 1989 to:

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INTRODUCTION

In the spring of 1989, the B.C. Forest Service began a review of the Forest Fire Prevention Regulation in order to determine its adequacy in light of current activities in and around forest lands in the province. This process includes the research and development of a new regulation to govern activities that take place in, or near, any forest to minimize the risk of man-caused fires. The review is being conducted by the Forest Fire Prevention Regulation Review Committee composed of B.C. Forest Service staff, and the committee has retained the consulting firm of Sterling Wood Group Inc. to undertake much of the research and development work.

An important part of this work is to solicit information and opinion from all those that use or are concerned with the forests, including several industries, not just the forest industry, owners of private woodlands, and those people who live near a forest or use it for recreation. Some meetings have been held with representatives of some of the industries and with Forest Service officials. This Discussion Paper is intended to be read by all who share an interest in protecting the health and value of forests, and your reaction to any of these issues or recommendations, either for or against, is encouraged. All responses received before the end of November, 1989 will be reviewed and considered before a new regulation is drafted.

PART I

BASIC PRINCIPLES OF FIRE PREVENTION REGULATIONS

Mandate

The B.C. Forest Service under the Ministry of Forests Act has, as one of its purposes and functions, the responsibility to " ... manage, protect and conserve the forest and range resources of the Crown, having regard to the immediate and long term economic and social benefits they may confer to the Province..."

Part 10 of the Forest Act is wholly concerned with forest protection and makes provisions relating to the protection of the forests of the Province on both Crown and private lands from the ravages of fire, insects and disease. The Act also allows the Lieutenant Governor in Council to make regulations.

Fire prevention regulations have been around for a long time - in fact fire protection was in the early years the single most important function of the Forest Service. The agency has assumed more responsibilities over time, but protection of our forests against fire must remain a duty of the highest priority. To discharge this duty effectively, the Forest Service must be given adequate statutory tools and these can best be provided through a regulation which is simple, yet flexible enough to meet the requirements of a bewildering array of activities and operations being carried out every day in British Columbia's forests, and is also forceful enough to ensure compliance.

Objectives

Forest users nowadays include many people with different purposes in mind. Whether they be for the pursuit of business or pleasure, the activities they pursue all present some degree of risk in accidently starting a forest fire. The objective of

a forest fire prevention regulation is to provide a series of obligations, with respect to fire prevention, with which every individual must comply depending upon the nature of the activity being undertaken. At the same time, to be effective, a regulation should not unnecessarily hamper people from carrying out that activity. Therefore the regulation must be able to reflect the risk presented by any activity at any time, and dictate minimum requirements to guard against the risks presented by the circumstances.

Application and Responsibility

The forest fire prevention regulation should apply to all who come in contact with a forest and it must be a legal duty for those persons to comply with the conditions and requirements of the regulation.

PART II

DESCRIPTIONS OF THE ISSUES WITHIN THE EXISTING FOREST FIRE PREVENTION REGULATIONS

The issues concerning the present regulations have been categorized into "Major" and "Minor".

Major Issues

1. Consolidation of Closely Related Regulations
2. Application of the Regulations
3. Fire Tool Requirements
4. Regulation of Industrial Operations
5. Enforcement of the Regulations
6. Inclusion of Class B Burning Permits
7. Application of Precautions According to Risk

Minor Issues

1. Interpretations and Definitions
2. Fire Tool Complements
3. Fireguards
4. Snag and Slash Disposal Regulation
5. Campfire Regulation
6. Fire Precautions in Relation to Railways
7. Exemptions from the Regulation
8. Smoking and Fireworks

MAJOR ISSUES

1. Consolidation of Closely Related Regulations

In addition to the Forest Fire Prevention Regulation there are other regulations under the Forest Act which are also pertinent to fire prevention in forests. They are:

- Campfire Regulation;
- Fire Precautions in Relation to Railways;
- Snag and Slash Disposal Regulation.

These regulations can exist perfectly well as separate entities, however there are some advantages in amalgamating them under one all-encompassing regulation. Firstly, they all are primarily concerned with the same objective - to prevent the accidental occurrence of fire in or near a forest. Secondly, fire prevention is everybody's business and there is little point in separating the regulations according to user group.

Since the Forest Fire Prevention Regulation is now being reviewed and revised this is a good opportunity to implement an amalgamation.

2. Application [Section 2 of the present Forest Fire Prevention Regulation]

The present Forest Fire Prevention Regulation applies to industrial operations, within 1 km of a forest, during April 15 to October 15 - the period defined in the Forest Act as the fire season.

It would appear that people who are not conducting an industrial operation are not subject to the regulation. This group would include those who are cutting firewood for personal use or using the forest for recreation. If the campfire regulation and the

provision for burning hand piles and household refuse are to be melded into the Forest Fire Prevention Regulation, then there is a need to extend the application of the regulation to cover all activities in the forests of British Columbia.

The purpose of extending the application of the regulation to 1 km from the forest reflects the possibility and hazard of fires spreading into a forest from near its perimeter. Originally this was $^{1}/_{2}$ mile, and then changed to 1 km when the metric system was introduced. In practice 1 km seems to be too great a distance. Many communities are close to a forest and the 1 km distance tends to include a multitude of industrial operations which are unlikely to be considered a hazard to the forest. This distance should be reconsidered in a new regulation.

Finally, there should be provision to extend the application of the regulation beyond the margins of the fire season. Sometimes weather situations induce early or late high fire danger conditions, and in these circumstances there is a need to impose the requirements of the fire prevention regulation. At present the regulation must be amended by order-in-council to allow this, and, since this can take several weeks to achieve, it is unwieldy. A new regulation should make provision to increase the flexibility of this procedure.

3. Fire Tool Requirements [Sections 7 & 8]

The present regulation requires that a minimum complement of hand tools such as shovels, mattocks and hand-tank pumps be kept close at hand on an industrial operation. This is augmented by a supplementary cache of fire-fighting tools located at a central location "readily accessible" to the work site. These tools include more hand tools as well as water pumps and hose for use in a concerted attack on the fire following the initial efforts made by the crew on the work site with the tools on hand.

There is little argument that there should be a modest complement of hand tools immediately on a worksite, but thought should be given to the requirement, as part of the regulation, for a central cache of additional equipment. Once a fire starts the first actions are to alert others, contain the fire as best one can with the tools at hand, and to apply water to the fire as soon as possible. The present regulations are inadequate in setting standards for delivery of this water in sufficient quantity to a fire within an acceptable period of time. A central cache of equipment is still needed for suppression of a fire to guard against those occasions when the fire cannot be contained in its initial stages.

There is presently no opportunity within the regulation to attach standards of fire preparedness to activities according to their risk. As they now stand, the regulation has been criticised for imposing too low a standard for some high risk operations, while being too burdensome on low risk activities.

The current regulation also lacks the flexibility to recognise the adequancy of some alternative equipment. This is particulary true of water pumps, where small, high-efficiency pumps can provide the needed water very effectively but are non-compliant. B.C. Forest Service staff are now accustomed to providing written exemptions from this part of the regulation to operations where alternative pump units are adequate. Clearly a regulation that can set a minimum for water delivery performance will make life easier for the Forest Service and for operators, while still safe-guarding the need for adequate protection.

4. Regulation of Industrial Operations [Sections 12 and 12.1]

Section 12 of the present Forest Fire Prevention Regulation provides a formula to govern the working hours of industrial operations. The formula is based on danger classes which are a measure of the fire hazard presented by trees, brush or slash in the forest. It is sensitive to the weather conditions at the time, as well as the history

of weather through the season leading up to that point in time. The formula dictates that, as danger classes increase, industrial operations must first maintain a watchman after work (at danger class III - moderate) then, when the danger class has been at class IV (High) for four days, the operation is required to cease all activity at 1:00 p.m. local time. This is coincident with the hottest times of the day when a fire can be started easily. After four days at danger class V (Extreme), operators are required to cease all activity and to shut down.

There appears to be little wrong with the intent of this section but there is certainly some room for fine tuning. Once again, as with the requirements for fire tools, there should be recognition of the different risks presented by different activities. The more hazardous activities such as high-lead cable logging should cease before others with less risk such as ground skidding of logs, and some activities present such a negligible risk that they should not be curtailed at all.

There has been criticism of the "early shift" conditions of this section of the regulation that stipulate 1:00 p.m. local time as the time at which operations must shut down. In order to achieve a full shift, those who work on industrial operations subjected to this condition must start at 4:00 a.m. In many parts of B.C. there is not enough daylight to allow work to start at this time and all workers experience considerable stress in trying to rearrange their lifestyle to conform. An extension of the work period until 2:00 p.m. local time would relieve much of the problem and its associated stress on the work force. This concession must be weighed against the increased risk of operating an additional hour during the most hazardous time of the day.

The regulation provides no formula for reversal of the early shift or shutdown procedures. In some cases operations oscillate back and forth between early shift and shut down depending on the weather for the day. Some operators wait for a major weather change before resuming early shift or normal operation. Fire weather experts have expressed concern about returning to normal operation too soon. Incidence of cloud or a temperature reduction may temporarily reduce the danger

rating by one class, allowing the operator to return for a further four days before again being obliged to change hours or curtail the operation.

The rationale for curtailing operations when there is a severe fire hazard is generally sound, but, when forest industry personnel vacate the work sites, the very people who can most effectively fight a fire are no longer present. At the time when forest fire danger is greatest, crews and equipment have been withdrawn and are often unavailable in the event of a fire that could be caused by lightning or the public. It is worth noting that there tends to be more fires started naturally or by recreational activities than by industrial operations. Often District Managers have decided that it is more expedient to allow operations to continue with added precautions rather than lose the fire fighting capacity afforded by the logging crews.

A new regulation should be sensitive to the need to provide a continuous presence of personnel in the forest during the periods of high danger while limiting those activities that present the greatest cause for concern for fire protection.

5. Enforcement of the Regulations [Refer to present FFPR Section 14 and *Forest Act* Sections 59 and 60]

Contravention of the present regulation is an offence and any person, or a person in charge of an industrial operation, may be charged with the offence under the *Forest Act*.

The primary concern of the Forest Service is to immediately correct a hazardous condition which contravenes the requirements of the regulation. The normal procedure is to issue an order, in writing, for the person or operation to take steps to comply. In most cases this is sufficient and the operator will follow the order. In some cases the operator has chosen to ignore the order leaving the Forest Service to attempt enforcement through the *Forest Act*. When the offence occurs on Crown Land

occupied under some form of licence, a Forest Officer may proceed under Section 59 of the *Forest Act* which provides the power of suspension. However this is not immediate and allows the operator 14 days to remedy the non-compliant condition. Clearly this is unsatisfactory when there is a matter needing immediate attention. Also, suspension of a licence is a severe penalty which is only appropriate to meet severe infractions. There is no appropriate penalty available as an enforcement tool for more minor infractions. As a result the Forest Service rarely invokes Section 59 to correct a situation.

On private land, or for operations where there is no licence to suspend, the Forest Service has even less power. Section 60 of the *Forest Act* allows a Forest Officer to immediately suspend operations when he feels non-compliance with regulations "... may imminently cause serious damage to the natural environment". Forest Service officials are uneasy with the application of this penalty for fire protection because it was written into the Act to give the power to immediately stop activities that are directly harming the environment such as operation of heavy equipment in a stream. There is some doubt as to whether the section addresses the needs for immediate suspension for fire prevention purposes. It also may be too severe a penalty to apply to minor infractions.

The power of enforcement of the regulations is a matter that involves both the regulation and the *Forest Act* in close combination. Two shortcomings have been identified: the lack of power to apply immediate suspension; and the lack of power to exact a lesser penalty (for example to impose a fine by issuing a ticket). These matters should be addressed in a new regulation but will likely require corresponding changes to the *Forest Act*, and the *Offences Act*.

6. Inclusion of Class B Burning Permits in the Regulation

Class B burning permits are issued by the Forest Service to allow the burning of small accumulations of debris such as hand-piled branches and trimmings or household refuse. The purpose of issuing the permit is for the Forest Service to control this activity, especially during fire-season, and to maintain a record of minor burning activity in each district. Many people, particularly in the Forest Service, advocate shifting the responsibility for safely conducting this activity onto the person lighting the fire by inclusion of clauses in the fire prevention regulation. Proponents say that the bureaucratic exercise of issuing permits is very time consuming and that the level of control is, in reality, quite limited. Furthermore, the issuance of a permit implicity includes the Forest Service as one of the responsible parties to the fire. Should there be damage to life or property, the Forest Service could be exposed to legal liability for the damages. In many communities class B permits are issued on behalf of the Forest Service by people authorised by a District Manager or a Forest Officer. Clearly any control that the Forest Service has is very limited in these cases. On the other hand, the opponents to inclusion of the Class B burning permit conditions into the regulation claim that there is significant control exercised by the Forest Service and that, not only can they be used to cross-check against reported sightings of smoke, they are a means of controlling smoke emission at times of the year when smoke can linger in valleys and become a public irritant.

There is a parallel between the method of dealing with these small "personal" fires and the management of campfires, which may help to guide us. Some years ago a person wishing to light a campfire for cooking or warmth during the fire season had to first obtain a permit from the Forest Service. The responsibility shifted to the person lighting the campfire to do so in a safe manner by the adoption of the Campfire Regulation under the *Forest Act*. This arrangement seems to be working well as it assigns responsibility for using a campfire in a safe manner to the individual, and allows a District Manager the authority to ban campfires in an area when the fire danger warrants such a measure.

7. Application of Precautions According to Risk

One of the limitations of the present Forest Fire Prevention Regulation is that there is little acknowledgment that some operations present more risk than others in starting a fire. This becomes a problem when weather conditions bring the danger class to high and extreme when all activities are treated equally regardless of the risk they pose. Operations are re-scheduled first to "early shift" and then are shut down completely when the danger class stays at extreme for more than a few days.

In recognition of this shortcoming, and because District Managers are anxious to retain workers in the forest who are able to react immediately to any outbreak of fire in their area with their equipment, exemptions have been given on a regular basis to lower risk activities. However, this is handled inconsistently and varies from district to district. It would be an improvement if a new regulation were able to recognise these variances in risk between activities and to provide direction accordingly.

MINOR ISSUES

There are several "housekeeping" matters that need attention in the regulations. These have been termed "minor issues" but nevertheless should be addressed. They are presented in notational form and for further background it may help the reader to refer to the current regulations.

1. **Interpretations and Definitions** [Section 1 of current FFPR.]

Engine:	The interpretation should allow for exclusion of water-borne engines and those others that do not present an appreciable hazard. The definition should differentiate between large and small engines.
Fire extinguisher:	Should be defined as being suitable for class A, B and C fires and it should be stipulated that they be kept charged and operable.
Industrial Operations:	Needs to be expanded to specifically include range related activities and silvicultural work, not just planting.
Pump Unit and Tanker Unit:	The major issue of fire tool requirements has been discussed in Part II. If there are changes to these requirements to be made, then these definitions will change or be eliminated.

2. **Fire Tool Complements** [Sections 1.(4), 3, 4, 5, 6, 7]

All tools should be kept in good working condition ready for immediate use, but the requirement to use them only for fire fighting purposes is questioned. Tools that may have other day-to-day uses are more likely to be well maintained. This being so, the need to mark them with red paint is redundant.

The actual complement of required tools seems to be logical and sufficient, although in some instances extra fire-extinguishers would be appropriate.

3. Fireguards [Section 11.(1)]

This section includes industrial operations within 1 km of a forest, and requires that they clear a 30 m fireguard from around its perimeter. This is specifically directed at a camp, mine or sawmill. Another hazard is from refuse disposal sites and these should be included as a category. The width of the fireguard seems large and could lead to excessive scarring of the landscape. Consideration should be given to reducing this to 15 m and to providing the District Manager the discretionary power to allow the use of alternative fire prevention systems such as sprinklers or, conversely, to require the increase in fireguard width if appropriate.

4. Snag and Slash Disposal Regulation

If this regulation is to be combined with the Forest Fire Prevention Regulation there is an opportunity to review the penalty amounts to adequately reflect current costs to dispose of snags and slash. Otherwise the conditions appear to be adequate.

5. Campfire Regulation

Fireplaces and firepits within a regulated campground should be exempted from the terms of the regulation. There is presently no obvious requirement to attend the fire at all times although this is stipulated in the *Forest Act*.

The requirement for a 1 m band of cleared ground down to mineral soil around each fire is widely ignored. Obviously it is unreasonably onerous, and a lesser width would be more practical. This regulation could also be amalgamated with the Forest Fire Prevention Regulation.

6. Fire Precautions in Relation to Railways

Although there are no obvious defects with this present regulation it seems opportune to also amalgamate it with the Forest Fire Prevention Regulation.

7. Exemptions from the Regulation

In practice exemptions are being handled by the District Manager and this should be directly acknowledged in the regulation.

8. Smoking and Fireworks

The regulation presently does not address the hazard of smoking of cigarettes, pipes etc. in the forest. This is one of the more common causes of forest fires and precautions should be stipulated.

Likewise there is no limitation on the lighting of fireworks in or near a forest during the fire season. A limitation to their use near a forest should be made.

PART III

SUGGESTED CHANGES AND ADDITIONS TO THE FOREST FIRE PREVENTION REGULATIONS

The Forest Fire Prevention Regulation and its relatives, the Campfire Regulation, the Snag and Slash Disposal Regulation and the Fire Precautions in Relation to Railways, are important statutory tools needed by the Forest Service. Because they are important in an administrative sense, they must be simple, flexible and enforceable and changes to them should be made with these principles in mind. While it is within the mandate of the Forest Service to enforce the regulations, it is also the duty of all people using the forest to conduct their activities within the conditions and requirements of the regulations. Therefore it is also important that these conditions and requirements are not unnecessarily burdensome and that they be applied fairly.

An attempt has been made to draft a new Forest Fire Prevention Regulation which envelopes all of the principles in the current related regulations. This draft regulation is attached as Appendix I for reference and the major changes are discussed below.

1. Interpretation [Sections 1.(1) and 1.(2) of proposed Forest Fire Prevention Regulation]

The definitions have been enhanced to support other changes made later in the main body of the regulation. Specifically there is a differentiation between "engine" and "small engine". The latter allowing specific requirements for equipment such as power saws while the former covers larger engines but allows some exclusions.

Risk classification is a new definition and allows the assignment of a risk class, either A, B or C (High, Medium or Low, respectively), to all activities in the forest. Most are listed in Schedule 1 attached to the draft regulation, others may be determined at the

discretion of a Forest Officer. Activities with different risk classification will have different conditions and requirements applied to them as will be seen in the body of the regulation.

The Water Delivery System Unit definition is an attempt to provide minimum standards of water delivery capacity and performance available in the event of a fire. It provides operators with the flexibility to choose from a wide variety of water delivery opportunities so that they can best match their equipment to the situations in which they are working.

2. Application [Section 2]

The application of the regulation has been broadened in terms of to whom it is directed, but has been confined to within 300 metres of a forest. This step is necessary because the regulation now covers more than just industrial operations and, as discussed in Part II, there is a need to exclude industrial operations which are a considerable distance away from the forest. The regulation applies during the fire season but, in this draft, there is the opportunity, should the need arise, for a District Manager to extend the term on a specific area for a particular period. This will allow the Forest Service to react quickly to hazardous conditions when they occur outside the fire season.

3. Fire Fighting Tools [Sections 3 - 7]

Each of the sections dealing with engines, small engines, cutting, grinding or welding of metals, explosives, and fire fighting tools is concerned primarily with the minimum complement of tools required for each situation. These have only been modified in a minor way: usually only to require that more fire extinguishers be available.

4. Water Delivery System [Section 8]

To address some of the shortcomings of the present regulation it is proposed in the draft regulation to stipulate the minimum standards of water delivery required to any location on the work site. This has been defined in the interpretation of a water delivery system unit in Section 1.(1). Section 8.(1) requires some industrial operations to keep one or more systems within 15 minutes of each work site. The number of systems varies between 0 and 2 depending on the configuration of risk classification and number of persons working on the operation. The details are tabulated in Schedule 2. The intent is to ensure that water in sufficient force and quantity can be applied to a fire starting in an area where people are working, in as short a time as is practically feasible. Two examples of water delivery systems in different situations are given in Appendix II.

5. Preventive Measures [Section 9]

Two new subsections are proposed under this category. First is the limitation of smoking while walking or working in a forest during fire season. This reflects the very real risk of fires started by smoking materials but does not preclude an individual from smoking altogether. It does mean however, that the person must stop his activity and stay in one place to smoke. While this is a difficult section of the regulation to enforce, it is felt that it is nonetheless a worthwhile inclusion.

Secondly, it is proposed that the use of fireworks be prohibited close to a forest when a campfire restriction order is in effect. The reasons are obvious and there is a need to regulate this activity.

6. Fire guards [Section 10]

Some small changes are made in this section to the size of protective strips cleaned of combustible material around an industrial facility. Perhaps the biggest change is

the specific inclusion of refuse disposal sites, where garbage is often set alight either deliberately or accidentally and can escape into the surrounding forest if inadequately contained.

7. Regulation of Industrial Operations [Section 12]

The requirement of an industrial operation to govern its activities according to the information gathered from a weather station is present in the existing regulation. The proposed new regulation includes this requirement under the above heading and provides the opportunity to exempt an operation from having its own weather station, if it is practical for the activities to be governed by another weather station.

The weather stations will provide information for the derivation of the "danger class" each day at 12:00 noon Pacific Standard Time, and, depending on the danger class and the number of days experienced at that class, it will be determined if any changes to the activity must take place. The decision-making criteria are:

a) danger class
b) number of days accumulated consecutively at that level
c) risk classification of the activity

As the danger class increases, high risk activities will be first to be affected. When extreme conditions prevail, high risk activities will be shut down and moderate risk activities limited to hours of operation early during the day or at night.

"Early" shift, as before, will mean that work must finish by 1.00 p.m. local time. The difficulties and inconveniences that this presents to operations will be alleviated to a large extent by the proposed new curtailment formula. Whereas at present all work must cease when conditions dictate adoption of early shift, the new formula would curtail only the high risk activities allowing the others to continue. It is felt that the

relaxation of the regulation to allow all work on early shift to continue until 2.00 p.m. presents an unacceptably higher risk.

The following table shows how restrictions to activities are triggered as danger class increases:

Danger Class	Risk Classification	Restrictions	Restrictions Reversed
III (Moderate)	A & B	After 3 consecutive days, maintain a watchman after work for 1 hour.	When danger class falls below III
IV (High)	A & B	Maintain a watchman as for Danger Class III.	By order from the District Manager
	A	On the 4th consecutive day, cease activity between 1 p.m. and 8 p.m. local time each day, and maintain a watchman after work for 2 hours.	
V	A & B	Maintain a watchman after work for 2 hours.	
	A	On the 2nd consecutive day, cease the activity all day.	By order from the District Manager
	B	On the 4th consecutive day, cease activity between 1 p.m. and 8 p.m. local time each day.	
Restricted District	A, B & C	Cessation of all activities all day	By written consent of District Manager

Explanatory notes:

Danger Class - is defined by (*"Fire Weather Indices, Decision Aids for Forest Operations in British Columbia"*) B.C. Forest Service Protection Branch, Victoria, B.C.

Risk Classification - for each activity is listed in Schedule 1 of the proposed regulation or as determined by the local District Manager.

Restricted District - means a ministerial notice issued under Section 115 of the *Forest Act* to restrict all activities within an area.

8. Campfires [Section 14]

The present campfire regulation has been imported virtually intact into the draft Forest Fire Prevention Regulation. The differences are that those campfires in a regulated campsite are specifically exempted, and that the bared-ground guard around the fire has been decreased to a modest 30 cm from the previous 1 metre. An additional clause is provided to require that a person be in attendance of the fire at all times.

9. Fire Precautions in Relation to Railways [Section 15]

This current regulation is also imported intact into the new draft regulation.

10. Burning of Hand-piled Material or Household Refuse [Section 16]

This is a proposed new addition to the regulation governing the lighting of small "utility" fires. They are presently controlled by issuance of a class B burning permit, and, for reasons described at length in Part II of this discussion paper, they may be best controlled by this regulation. The section provides limits to the size of piles that may be burned, the precautions to be taken and the tools to be kept on hand.
When more than one pile is to be lit at one time, or the debris is machine piled, or for any reason the conditions do not conform with this section, the operator must first obtain a burning permit from the Forest Service in the normal manner before setting light to the material to be burned.

11. Additional Requirements [Section 17]

This section has been added to the proposed regulation to allow a District Manager to respond appropriately to a hazardous situation and to impose additional conditions or requirements if necessary.

12. Exemptions [Section 18]

There will always be situations where application of the regulation is inappropriate or would over-confine an activity to the point that it could not be economically justified. This section provides a District Manager with the discretionary power to exempt a person or an industrial operation from all or part of the regulations.

The section also recognizes that some operations may be governed by an approved fire management plan and allows a District Manager to exempt the operation from all or parts of the regulation in favour of the terms of the plan.

13. Suspension of an Industrial Operation [Section 19]

A serious deficiency in the present regulation is the inability of the Forest Service to act swiftly when an operation is not in compliance with the regulation and is presenting an intolerable risk of starting a fire. This section allows a District Manager to immediately cause the operation to be suspended until the situation is remedied.

14. Offences [Section 20]

In this section the current Snag and Slash Disposal Regulation is incorporated into the Forest Fire Prevention Regulation. The penalty rates have been changed to bring them into line with present-day average costs but otherwise it remains the same. Subsection (2) extends the offences to include any person as well as a person in charge of an industrial operation.

The Forest Service is not empowered to deal appropriately with minor infractions of the regulation. It may issue an order to correct the situation and if this is not done, it is limited to its only recourse which is to suspend the operation. This drastic action may

be too severe when the infraction is merely an insufficient complement of hand tools or a machine bearing a non-complying shovel. A more appropriate and effective enforcement practice would be to issue a ticket for the infraction requiring the person to whom it is issued to pay a fine or to appear in court to respond to the charge of the infraction. There is no provision for this in the Forest Act at present but it has been suggested that changes to the legislation be made to allow a Forest Officer to issue such a ticket.

APPENDIX I

FOREST ACT

FOREST FIRE PREVENTION REGULATION (Draft)

[Effective January 1, 1990]

Interpretation

1.(1) In this regulation:

"engine" means any engine in excess of 7.45 kw (10 hp) used within a forest but does not include water borne engines nor those in vehicles which are primarily used for the transport of people;

"fire extinguisher" means a fully charged operable fire extinguisher suitable for use on class A, B, and C fires, as defined by the Canadian Underwriters Association;

"risk classification" means the activity risk class assigned to an industrial operation or activity and specified in Schedule 1 or as determined by a Forest Officer;

"industrial operation" includes logging, milling, land clearing, range improvement, engineering, construction, use of explosives, silvicultural operations, or other industrial activity utilizing men, equipment or both and may comprise any one or more of the activities listed in Schedule 1;

"person in charge" means the employer or a representative of the employer or a worker who is responsible for the conduct of work at a worksite.

"small engine" means any internal combustion engine 7.45 kw (10 hp) or less being used within a forest.

"watchman" means a person providing surveillance, detection and reporting for fire protection.

"water delivery system unit" means a system comprising a water supply, water pump or head of water and enough hose and necessary attachments, including tools for maintenance, sufficient to deliver water at a pressure of 280 kPa (40 psi) at a rate of 90 litres per minute through a 9.5 mm straight bore nozzle orifice for 50 minutes to any place on the work site.

"work site" means the place where an industrial operation is being carried out.

(2) All tools and pumps required by this regulation are to be kept in good working condition for immediate fire fighting purposes.

Application

2. This regulation applies to any person or to any industrial operation within 300 metres of any forest and applies during the fire season, or for an area and a period specified by a District Manager.

Engines

3.(1) The person in charge of an industrial operation shall ensure that each engine has the following attached:

(a) one round-nosed shovel;
(b) one pulaski tool or mattock;
(c) one fire extinguisher containing a minimum of 4.5 kg of gas or 2.25 kg of dry chemical;
(d) one fire extinguisher containing a minimum of 2.25 kg of gas or 1.13 kg of dry chemical.

(2) A person in charge of an industrial operation which includes a sawmill shall, in addition to the requirements set out in subsection (1), ensure that at least one water delivery system unit is located on the sawmill work site.

Small engines

4.(1) A person operating a small engine shall carry with him a fire extinguisher charged with not less than 0.225 kg of fire extinguishing chemical and shall keep a round-nosed shovel at the small engine refuelling point.

(2) A person operating a small engine shall ensure that the muffler on it is maintained in good repair and in clean condition.

(3) A person shall not modify or redirect the emissions from a small engine muffler if the ability of the muffler to reduce hot carbon emissions is reduced by doing so.

Cutting, grinding or welding of metals

5.(1) Where the cutting, grinding or welding of metals or other hot work is being performed, a watchman besides the person performing the work shall be present to watch for sparks and help extinguish any flames.

(2) Subject also to Section 12.(4), a watchman shall remain for 30 minutes after the work has ceased at a site where work referred to in this section has been performed.

(3) Where work referred to in this section is being performed, the following equipment shall be present:

(a) one fire extinguisher containing a minimum of 4.5 kg of gas or 2.25 kg of dry chemical;

(b) one fire extinguisher containing a minimum of 2.25 kg of gas or 1.13 kg of dry chemical;

(c) not less than one round-nosed shovel;

(d) not less than 2 hand-tank pumps containing not less than 18 litres of water each.

(4) Prior to commencement of work referred to in this section the site shall be prepared by removing flammable material so as to minimize the risk of fire occurring or spreading.

Explosives

6. Where explosives are being used, 2 round-nosed shovels and 2 hand-tank pumps containing not less than 18 litres of water each shall be kept at the site where the explosives are being used.

Fire-fighting tools

7. At every site where work of an industrial operation is being carried on, where the number of persons working at the site is:

(a) 3 or less, one round-nosed shovel, one pulaski tool or mattock and one hand-tank pump containing not less than 18 litres of water shall be kept at the work site, and

(b) more than 3, one round-nosed shovel, pulaski tool or mattock per person, with as nearly equal numbers of each tool as possible, shall be kept at the work site and, in addition, one hand-tank pump containing not less than 18 litres of water for every 3 persons to a maximum of 8 pumps.

Water delivery system

8.(1) In addition to the tools required by sections 3 to 7, a person in charge of an industrial operation shall keep and maintain within 15 minutes of each work site the number of water delivery system units listed in column 3 of schedule 2 for the risk classification of the activities listed in column 1 being performed at that work site and the number of persons listed opposite them in column 2.

(2) Where a water delivery system is required under subsection (1) a person in charge of an operation shall ensure that there is at least one person at the work site with the knowledge and competence to operate and maintain the system equipment.

Preventive measures

9.(1) A person operating an engine shall ensure that it is equipped with a safe, effective device for arresting sparks that is an integral part of the exhaust system and shall ensure that it is maintained in a state of good repair.

(2) All flammable material shall be removed for a distance of not less than 3 m in each direction from a machine operating in a stationary capacity.

(3) All running lines shall be laid out in straight lines and all flammable material removed to a width of 75 cm on each side of the running-line for a distance of 4 m in either direction from each corner block, and immediately adjacent to each corner block in use there shall be a hand-tank pump containing not less than 18 litres of water.

(4) The operator of a sawmill shall dispose of all combustible waste produced during the operation of the sawmill.

(5) No person shall smoke while walking or working in a forest during the fire season.

(6) When an order to ban the use of campfires made under section 114(a)(ii) of the Forest Act is in effect, no person shall ignite fireworks within 300 m of a forest.

Fire guards

10.(1) A camp, mine, sawmill, refuse disposal site or other industrial operation within 300 m of a forest shall keep clear all combustible material from around its perimeter for a distance of at least 15 m in all directions, or shall employ other precautions as directed by the District Manager.

(2) The operator of an industrial operation referred to in subsection (1) shall dispose of all combustible material cleared from around its perimeter under subsection (1).

Helicopter logging

11. Where one or more helicopters are regularly used in a logging operation to extract logs and to move personnel and equipment to and from the logging operation, the person in charge of the logging operation, in addition to the other requirements of this regulation, shall ensure that

(a) for each helicopter so used there is kept at a landing spot near the place of operations, for use exclusively by that helicopter, a water bucket that is
  (i) of a type designed and adapted for aerial fire fighting,
  (ii) compatible, functionally and in size, to the helicopter,
  (iii) attachable to the helicopter, and
  (iv) capable of being both filled and emptied from the helicopter while the helicopter is airborne, and

(b) each helicopter so used is equipped and maintained so that it is capable of operating the water bucket required under this section to be kept for its use.

Regulation of industrial operations

12.(1) Where an industrial operation is being conducted, the person in charge shall establish and maintain a weather station that is capable of yielding the information required to determine the danger class for the regulation of activities as described in subsections (3) and (4).

(2) A District Manager may, in writing, exempt a person in charge of an industrial operation from the requirement of subsection (1) where the person agrees to regulate the operation according to the information provided by a weather station designated by the District Manager.

(3) The person in charge of an industrial operation shall regulate its activities according to the fire "danger class" determined for the locality in which the operation is being carried on, at 12 noon Pacific Standard Time each day, in accordance with the manual of the Forest Service Protection Branch of the B.C. Forest Service that is entitled "Fire Weather Indices, Decision Aids for Forest Operations in British Columbia".

(4) For any industrial operation, where the level of "danger class" is determined as

(a) danger class III, on the third and subsequent consecutive days at level III a watchman shall be maintained for at least 1 hour following cessation of operations each day at each work site of the operation where an activity listed in Schedule 1 has a risk classification of A or B,

(b) danger class IV,
  (i) on each day at level IV a watchman shall be maintained as required for danger class III, and
  (ii) on the fourth day at level IV, and each day following, activities listed in Schedule 1 having a risk classification of A shall, until otherwise directed by a District Manager, shut down between 1 p.m. and 8 p.m. local time each day, and a watchman shall be maintained for 2 hours following cessation of operations.

(c) danger class V,
  (i) on each day at level V a watchman shall be maintained for 2 hours following cessation of operations each day and otherwise as required for danger class III, and
  (ii) on the second day at level V, and each day following, activities listed in Schedule 1 having a risk classification of A shall, until otherwise directed by a District Manager, shut down all day, and
  (iii) on the fourth day at level V, and each day following, activities listed in Schedule 1 having a risk classification of B shall, until otherwise directed by a District Manager, shut down between 1 p.m. and 8 p.m. local time each day.

Watchman

13. Every person while being employed or acting as a watchman shall have access to fire-fighting tools as required in section 7.(a) and shall have with him a radio or telephone communication equipment that is capable of being used to report a fire and request assistance.

Campfires

14.(1) This section applies when a person lights and makes use of an open fire for cooking or warmth as provided by section 111 of the Forest Act.

(2) This section does not apply to stoves using liquid or gas fuels, or briquets, nor to permanent camp-site fireplaces within a regulated campground.

(3) A person who lights, fuels, or makes use of fire for cooking or for warmth shall observe the following conditions:

(a) the fire shall be not less than 3 m from any log, stump, snag, or standing tree;

(b) the fire shall be not less than 15 m from any slash or other inflammable debris or from a wooden structure;

(c) a pail containing not less than 8 litres of water or a shovel shall be kept near the fire at all times;

(d) all combustible material shall be removed down to mineral soil for not less than 30 cm in every direction from the perimeter of the fire;

(e) the fire shall not be more than 1 m in diameter nor 1 m in height;

(f) the fire shall not be left unattended;

(g) the fire shall be completely extinguished before leaving so that the ashes and any unburned material are no longer warm when touched.

(4) A person shall not light, fuel, or make use of fire where there is a wind strong enough to cause sparks or other burning material to land in any combustible material in the vicinity.

Fire precautions in relation to railways

15.(1) A railway company shall maintain its right of way free from dead or dry grass, weeds and other unnecessary combustible material but shall not itself or through its agents or contractors burn any ties, cuttings, debris or litter on or near its right of way unless sufficient supervision of the fire is maintained to prevent it from spreading beyond the strip being cleared.

(2) In addition to the requirements of subsection (1), where the risk of fire in an area justifies the expense, the District Manager may order a railway company to plough or dig a strip of land on one or both sides of its tracks and to take such other steps as are necessary in the area to reduce the possibility of a fire occurring, and a railway company shall on receiving the order, comply with it forthwith.

(3) A railway company shall patrol its right of way so that early detection of a fire will occur and to ensure that sufficient persons will be available in the area to combat a fire that is detected.

(4) Where the danger of a fire occurring is low in an area of the Province, a District Manager or a person authorized in writing by him may, in writing, exempt a railway from the requirements of subsection (3) in that area.

Burning of hand-piled material or household refuse

16.(1) This section does not apply to burning of refuse in a fully enclosed container.

(2) A person who, within 300 m of a forest, lights, fuels or makes use of a fire for the purpose of disposing of hand-piled material or household refuse shall observe the following conditions:

(a) no more than one pile may be alight at one time;

(b) piles of material to be burned shall not be larger than 2 m by 2 m and shall not be more than 1.5 m high.

(c) the fire shall not be less than 4 m from any log, stump, snag or standing tree.

(d) the fire shall not be less than 15 m from any slash, other combustible debris or from any structure.

(e) a round-nosed shovel and a fully charged garden hose or other source of water of not less than 18 litres in capacity shall be kept near the fire at all times.

(f) all combustible material shall be removed down to mineral soil for not less than 1 m in every direction from the perimeter of the fire.

(g) the fire shall be attended by at least one adult person until completely extinguished.

(3) A person shall not light, fuel or make use of a fire under this section where there is a wind strong enough to cause sparks or other burning material to land in any combustible material in the vicinity.

(4) Where he considers it necessary as a precaution against forest fire or to control the amount of smoke in the air a District Manager may, in a notice published or broadcast, or both in or near an area of the Province, order that no person shall light, fuel or make use of an open fire in the area for burning of hand-piled material or household refuse.

Additional requirements

17. Where a particular activity presents a significant danger of fire occurring, a District Manager may impose additional conditions or requirements beyond those set forth in this regulation.

Exemptions

18.(1) Where a particular activity is unlikely to result in a significant danger of fire occurring, a District Manager or a person authorized in writing by him may, in writing, exempt a person or an industrial operation from all or part of this regulation with respect to that activity.

(2) Where a District Manager has approved a fire management plan governing a particular activity, he may, in writing, exempt a person or an industrial operation from all or part of this regulation with respect to that activity.

Suspension of an industrial operation

19. Where an industrial operation is not in compliance with any requirement set forth in this regulation a District Manager or a person authorized in writing by him may by written order and without notice suspend the operation or any activity being carried out as part of that operation.

Offences

20.(1) Where a person fails to dispose of slash in accordance with section 117 of the Act or fails to fall snags in accordance with section 118 of the Act, the amount that the Regional Manager may order the person to pay to the Crown under section 119 (1)(b) of the Act shall be

(a) in the case of failure to dispose of slash, $250/ha, and

(b) in the case of failure to fall snags, $100/ha.

20.(2) Any person or a person in charge of an industrial operation in contravention of the requirements set forth in this regulation, commits an offence and every day the offence continues constitutes a separate offence.

Schedule 1

RISK CLASSIFICATION BY ACTIVITY

B Bitumen processing - portable plant
A Blasting
C Bridge building
B Bucking - at landing
A Bucking - power saw
B Bucking - tree processor
B Drilling
C Equipment moving
C Excavating
B Fencing
B Gas line corridor clearing
B Gas or oil well operation
B Gas or oil well drilling
C Gravel processing loading and hauling
C Guiding, packing or trapping
B Land clearing - initial
C Land clearing - repiling
C Log dumping
B Log forwarding
C Log hauling
C Log loading
C Log scaling
A Log yarding - aerial cable
B Log yarding - helicopter
B Log skidding - ground system
C Log sorting
A Metal cutting, grinding or welding
A Mining exploration - line
C Mining exploration - placer
C Mining exploration - prospecting
B Mining exploration - trenching
C Mining
B Pipe line construction
B Power line construction
B Power line corridor clearing
C Quarrying
A Rail grinding
B Railway construction
B Railway maintenance
C Railway operation
C Ranch operation
A Refuse disposal
B Road construction - pioneering, stumping or clearing
C Road construction - subgrade or surfacing
C Road maintenance
A Sawmilling
C Silviculture - chemical
B Silviculture - using engines
A Silviculture - using small engines
C Silviculture - using hand tools
C Surveying, timber cruising or engineering
C Tourist resort operation
C Trail building - using hand tools
A Trail building - using small engines
A Tree falling - using power saws
B Tree falling - mechanical

Where an industrial operation entails more than one component activity, each activity will be subject to this regulation.

Schedule 2

Column 1 Risk Classification	Column 2 Number of Workers	Column 3 Water Delivery System Units
A	1 - 2	0
A	3 - 8	1
A	9 +	2
B	1 - 3	0
B	4 - 8	1
B	9 +	2
C	1 - 8	0
C	9 +	1

APPENDIX II

Examples of a suitable "Water Delivery System Unit":

pressure:	280 kPa or 40 psi
volume per minute:	90 litres or 20 imperial gallons
straight bore nozzle:	9.5 mm or 3/8 inch
time:	50 minutes

Example 1

4500 litre (1000 gallon) tank unit or equivalent natural water source complete with large portable pump capable of 1000 kPa (142 psi) from a 30 m hose with a 9.5 mm nozzle:

slope	maximum uphill distance (lined, 38 mm hose)
45 %	150 m (500 feet)
25 %	220 m (700 feet)
10 %	400 m (1320 feet)
level	1000 m (3300 feet)

Example 2

1100 litres (250 gallon) tank transported by a skidder and equipped with a small portable pump capable of 400 kPa (60 psi).

Maximum hose length on level ground is 150 m with a 9.5 mm nozzle (assuming 38 mm lined hose).

A minimum of 2 of these skidder tanks is required when the return time to refill one tank is a maximum of 12 minutes (i.e. maintain a constant water supply for 50 minutes duration and 4500 litres of total volume).

QUESTIONNAIRE

Your comments and suggestions concerning the issues described in this discussion paper are important to us when we prepare the next draft of the Forest Fire Prevention Regulation. We would like your comments and suggestions in writing and, to assist, we have prepared the following questionnaire. If a particular issue requires more space or if there is a subject not covered in the questionnaire please include your comments on another sheet of paper.

PART I - USER DEFINITION

I use the forest for:

a) My work in: (check one)

_____ Government _____ (please state Dept.)
_____ Forest industry (logging)
_____ Forest industry (silviculture)
_____ Mining or exploration
_____ Ranching
_____ Guiding, packing or trapping
_____ Other _____ (please state)

and/or

b) My recreation in: (check one)

_____ Hunting
_____ Fishing
_____ Hiking
_____ Camping
_____ Horseback riding
_____ Berry-picking
_____ Firewood cutting
_____ All terrain vehicle use
_____ Driving around
_____ Enjoying the environment
_____ Other _____ (please state)

c) The forests I most use are in: (check one region)

_____ Cariboo and Chilcotin
_____ Kamloops and Okanagan
_____ Nelson and Kootenays
_____ Vanderhoof, Prince George and North East
_____ Burns Lake, Smithers and North West
_____ Vancouver, Vancouver Island and the Coast

or provide the nearest town _____

PART II - RESPONSE TO PROPOSED NEW REGULATION

In this part of the questionnaire please indicate your opinion of the following issues. Parts II and III of the discussion paper provide background, and the entire draft regulation is found in Appendix I. Space is limited for comments, so please use extra paper if necessary.

Issue	Reference to Section No.	(please check one) Agree	Disagree	No Opinion	Comments
1. The regulation should apply to all who use the forest.	2				
2. The fire-fighting requirements and conditions are adequate for:					
a) engines	3.1				
b) sawmills	3.2				
c) Small engines	4				
d) cutting, grinding or welding metals	5				
e) explosives	6				
f) helicopter logging	6				
g) the no. of employees working	7				
3. The concept of a full water delivery system is an improvement.	8				
4. 15 minutes is a fair time to allow for deployment of a water delivery system	8.1				
5. It is appropriate to assign risk classes to different activities.	8.(1) and Schedule 1				
6. The risk classes assigned to each activity are appropriate.	Schedle 1				
7. The requirements for Water Delivery Systems set out in schedule 2 are fair and appropriate.	Schedule 2				
8. Operators should be required to keep a central cache of additional fire fighting tools.	7 & 8				
9. Smoking should be prohibited while walking or working in a forest.	9.(5)				
10. Use of fireworks should be controlled in or near a forest.	9.(6)				
11. Refuse disposal sites need a fireguard around their perimeter.	10.(1)				
12. "Early shift" and "shutdown" conditions should apply first to high risk operations and then to medium risk operations.	12.(4)				

Issue	Reference to Section No.	(please check one) Agree	Disagree	No Opinion	Comments
13. Except when a complete restriction order is announced low risk operations should not be curtailed in any way.	12.(4)				
14. The watchman requirements are satisfactory.	12.(4)				
15. The "triggers" for early shift and shut down are appropriate.	12.(4)				
16. "Early shift" should end at 1 p.m. local time and resume at 8 p.m.	12.4				
17. The limitations and conditions for campfires are reasonable.	14				
18. Burning of hand-piled material or household refuse should be controlled under the regulation rather than by burning permit.	16				
19. The limitations and conditions for burning hand-piled material are reasonable.	16				
20. The District Manager should be able to impose additional conditions and requirements if necessary.	17				
21. The District Manager should be able to immediately suspend an operation when it is not in compliance.	19				
22. A Forest Officer should be able to issue a ticket imposing a fine of $50.00 to any person causing an infraction of the regulation.	20				

When you have completed the questionnaire please mail it together with any other comments before November 30, 1989 to:

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